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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,997	06/26/2001	Tsukasa Yagi	15162/03790	9619
24367	7590	01/17/2008		
SIDLEY AUSTIN LLP 717 NORTH HARWOOD SUITE 3400 DALLAS, TX 75201			EXAMINER NGUYEN, HOAN C	
			ART UNIT 2871	PAPER NUMBER
			MAIL DATE 01/17/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

514

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/891,997	YAGI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	HOAN C. NGUYEN	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 and 29-48 is/are pending in the application.
- 4a) Of the above claim(s) 6-26 and 30-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 29 and 44-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input checked="" type="checkbox"/> Other: _____               |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/2007 has been entered.

### ***Response to Amendment***

Applicant's arguments with respect to the unamended claims 1-5, 29 and 44-48 based on the Response filed on 10/31/2007 have been considered but are in the same old ground(s) of rejection. Therefore, this is Final action.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5, 29 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagishi (US4920409A) in view of Yoneda et al. (US6954195B2).

In regard to claims 1 and 47-48, Yamagishi discloses (Fig. 1) all features in claims 1-3 and 47 except for inversely arrangement of the scanning and signal lines. Here, scanning electrodes (C1-C3) are interchanged with signal electrodes (R1-R7) in reference of Yamagishi for vertical and horizontal choices. In another words, scanning electrodes C1-C3 can be renamed to be signal electrodes and signal electrodes R1-R7 can be renamed to be scanning electrodes. The renamed electrodes will not change any property of display. [as discussed in Office Action mailed on 9/23/04, 4/20/2004 and 5/2/2005].

Therefore, a liquid crystal display apparatus comprising:

- a liquid crystal layer comprising liquid crystal and having a plurality of pixels, where scanning electrodes cross the signal electrodes, arranged in a matrix composed of rows and columns;
- a number of first scanning electrodes Y1-Y7 according to electrode R1-R7 aligned in a first direction at a first pitch (between  $Y_i$  and  $Y_j$ , where  $i$  and  $j = 1-7$ ), the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction (y-direction);
- a plurality of signal electrodes X1-X3 according to electrode C1-C3 facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction (X-direction) at a second pitch (between  $X_m$  and

$X_n$ , where  $n$  and  $m = 1-3$ ) wider than the first pitch and each of the signal electrodes extending in the first direction.

- a scanning electrode driver connected to the first scanning electrodes;
- a signal electrode driver connected to the signal electrode;

Claim 2:

- pixels are formed at intersections of the first scanning electrodes and the signal electrodes; and each of the pixels is a rectangle of which shorter sides are parallel to the first direction and of which longer sides are parallel to the second direction.

Claim 3:

- a width of each of the first scanning electrodes defines a length of the shorter sides of each of the pixels; and a width of each of the signal electrodes defines a length of the longer sides of each of the pixels.

Claim 4-5:

- the first pitch is  $1/n$  of the second pitch, wherein  $n$  is 2.

Claim 44:

- all of pixels can display a same color for reducing cost due to less expensive for one color display than for three color display.

However, Yamagishi fails to disclose a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the

scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48).

**Yoneda et al.** teach a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48, claims 45-46 inherently illustrated in Fig. 8, see **Response to Arguments** below).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning and signal lines for designed choice of vertical and horizontal images, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70; wherein the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent for consuming less power (col. 3 lines 17-20); a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48) for high speed writing, achieving easy-to-see screen (col. 2 lines 1-11) as taught by Yoneda et al.

2. Claims 1-5, 29 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagishi (US4920409A) in view of Yamakawa et al. (US6697039B1).

In regard to claims 1 and 47-48, Yamagishi discloses (Fig. 1) all features in claims 1-3 and 47 except for inversely arrangement of the scanning and signal lines. **Here, scanning electrodes (C1-C3) are interchanged with signal electrodes (R1-**

R7) in reference of Yamagishi for vertical and horizontal choices. In another words, scanning electrodes C1-C3 can be renamed to be signal electrodes and signal electrodes R1-R7 can be renamed to be scanning electrodes. The renamed electrodes will not change any property of display. [as discussed in Office Action mailed on 9/23/04, 4/20/2004 and 5/2/2005].

Therefore, a liquid crystal display apparatus comprising:

- a liquid crystal layer comprising liquid crystal and having a plurality of pixels, where scanning electrodes cross the signal electrodes, arranged in a matrix composed of rows and columns;
- a number of first scanning electrodes Y1-Y7 according to electrode R1-R7 aligned in a first direction at a first pitch (between  $Y_i$  and  $Y_j$ , where  $i$  and  $j = 1-7$ ), the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction (y-direction);
- a plurality of signal electrodes X1-X3 according to electrode C1-C3 facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction (X-direction) at a second pitch (between  $X_m$  and  $X_n$ , where  $n$  and  $m = 1-3$ ) wider than the first pitch and each of the signal electrodes extending in the first direction.
- a scanning electrode driver connected to the first scanning electrodes;
- a signal electrode driver connected to the signal electrode;



Claim 2:

- pixels are formed at intersections of the first scanning electrodes and the signal electrodes; and each of the pixels is a rectangle of which shorter sides are parallel to the first direction and of which longer sides are parallel to the second direction.

Claim 3:

- a width of each of the first scanning electrodes defines a length of the shorter sides of each of the pixels; and a width of each of the signal electrodes defines a length of the longer sides of each of the pixels.

Claim 4-5:

- the first pitch is  $1/n$  of the second pitch, wherein  $n$  is 2.

Claim 44:

- all of pixels can display a same color for reducing cost due to less expensive for one color display than for three color display.

However, Yamagishi fails to disclose a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the scanning electrode driver and the signal electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to

display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48).

**Yamakawa et al.** teach a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48, claims 45-46 inherently illustrated in Tables 1-2, see **Response to Arguments** below).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning and signal lines for designed choice of vertical and horizontal images, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70; wherein the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a

nematic liquid crystal compound and a chiral agent for consuming less power supply and obtaining large screen (col. 2 lines 44-59); a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (resetting state) for reducing time of rewriting where resetting is sequentially performed for each scanning electrode as taught by Yamakawa et al.

3. Claims 1-5, 29 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagishi (US4920409A) in view of Masazumi (US6414669B1) and Kimura (US5602559A).

In regard to claims 1 and 47-48, Yamagishi discloses (Fig. 1) all features in claims 1-3 and 47 except for inversely arrangement of the scanning and signal lines. **Here, scanning electrodes (C1-C3) are interchanged with signal electrodes (R1-R7) in reference of Yamagishi for vertical and horizontal choices. In another words, scanning electrodes C1-C3 can be renamed to be signal electrodes and signal electrodes R1-R7 can be renamed to be scanning electrodes. The renamed**

**electrodes will not change any property of display [as discussed in Office Action mailed on 9/23/04, 4/20/2004 and 5/2/2005].**

Therefore, a liquid crystal display apparatus comprising:

- a liquid crystal layer comprising liquid crystal and having a plurality of pixels, where scanning electrodes cross the signal electrodes, arranged in a matrix composed of rows and columns;
- a number of first scanning electrodes Y1-Y7 according to electrode R1-R7 aligned in a first direction at a first pitch (between  $Y_i$  and  $Y_j$ , where  $i$  and  $j = 1-7$ ), the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction (y-direction);
- a plurality of signal electrodes X1-X3 according to electrode C1-C3 facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction (X-direction) at a second pitch (between  $X_m$  and  $X_n$ , where  $n$  and  $m = 1-3$ ) wider than the first pitch and each of the signal electrodes extending in the first direction.
- a scanning electrode driver connected to the first scanning electrodes;
- a signal electrode driver connected to the signal electrode;

Claim 2:

- pixels are formed at intersections of the first scanning electrodes and the signal electrodes; and each of the pixels is a rectangle of which shorter sides are

parallel to the first direction and of which longer sides are parallel to the second direction.

Claim 3:

- a width of each of the first scanning electrodes defines a length of the shorter sides of each of the pixels; and a width of each of the signal electrodes defines a length of the longer sides of each of the pixels.

Claim 4-5:

- the first pitch is  $1/n$  of the second pitch, wherein  $n$  is 2.

Claim 44:

- all of pixels can display a same color for reducing cost due to less expensive for one color display than for three color display.

However, Yamagishi fails to disclose a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the scanning electrode driver and the signal electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the

pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48).

Masazumi teaches a liquid crystal display apparatus comprising the liquid crystal having a memory effect wherein the liquid crystal exhibits a cholesteric phase and comprises a nematic liquid crystal compound and a chiral agent (claim 29) retaining the display states of the liquid crystals if the deselect signal is held below the prescribed threshold voltage.

**Kimura** teaches a liquid crystal display apparatus with a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48, claims 45-46 are inherently illustrated in Figs. 3-5, see **Response to Arguments** below).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning and signal lines for designed choice of vertical and horizontal images, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70; wherein (a)

the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent for consuming less power supply and obtaining large screen (col. 2 lines 33-34) as taught by Masazumi; (b) a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (resetting state) for achieving multi-gradation display (col. 3 lines 44-67) as taught by Kimura.

### ***Response to Arguments***

Applicant's arguments filed on 02/16/2007 have been fully considered but they are not persuasive.

#### **Applicant's arguments:**

(1) Yamagishi reference in accordance with its principle of operation, the combined references do not show or suggest "a number of first scanning electrodes aligned in a first direction at a first pitch" and "a plurality of signal electrodes facing the first scanning electrodes ..., the signal electrodes being aligned in the second direction at a second pitch wider than the first pitch."

Examiner's responses:

(1) First, Yamagishi discloses (fig. 1) a set of electrodes including the stripped-shape common electrodes C1-C3 and the segment electrodes R1-R7. Fig. 1 also shows that the width of the common electrodes C1-C3 approximately is twice of the width of the segment electrodes R1-R7. Therefore, Fig. 1 shows the pitch of the common electrodes C1-C3 approximately is twice of the pitch of the segment electrodes R1-R7.

In the Prior Art Yamagishi, the common electrode C1-C3 would connect to the scanning drivers, thus the common electrodes C1-C3 consider as scanning electrodes; the segment electrodes R1-R7 would connect to the signal drivers, thus the segment electrodes R1-R7 consider as the signal electrodes (see attachment).

In modifying (turning 90 degrees) the Prior Art Yamagishi, examiner interchanges or swaps the common electrodes with the segment electrodes. The segment electrodes R1-R7 now connect to the scanning driver, thus the segment electrodes R1-R7 will consider as scanning electrodes; the common electrodes C1-C3 now connect to the signal drivers, thus the common electrodes C1-C3 will consider as the signal electrodes (see attachment).

The same modification can be applied to Figs. 2-3 of Prior Art Yamagishi with turning 90 degrees then connecting to drivers.

**Conclusion**

1. This is a continuation of applicant's earlier Application No. 09/891997. All claims are drawn to the same invention claimed in the earlier application and could have been



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finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

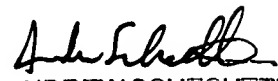
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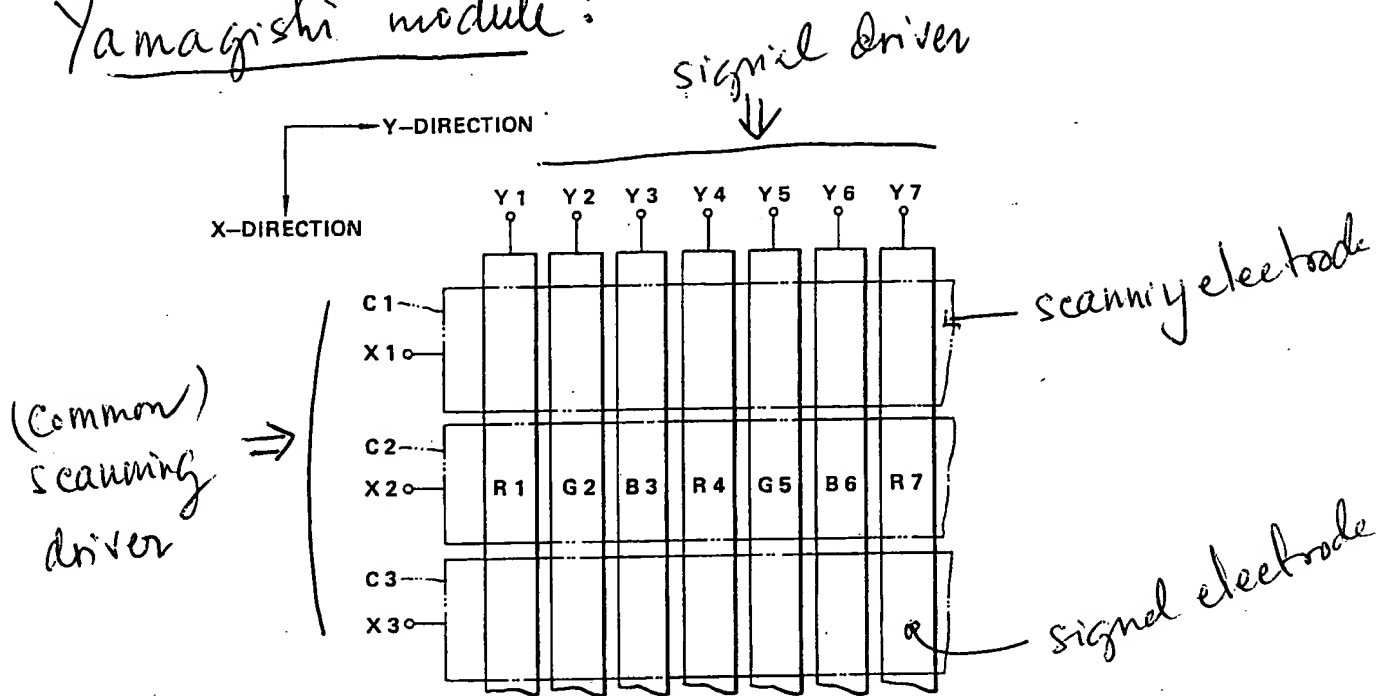
HOAN C. NGUYEN  
Examiner  
Art Unit 2871

chn

  
JOHN F. SCHELL  
PATENT EXAMINER

# Attachment

## Yamagishi module :



Modified module : turn  $90^\circ$  then connect to driver

